

**AMENDED CLAIMS**  
**received by the International Bureau on 12 December 2006 (12.12.2006)**

What I claim is:

1. A fuel burning device, comprising:

a tubular combustion cylinder open at opposing first and second ends;

a fuel inlet pipe having a first end extending through said first end of said combustion cylinder partially into the combustion cylinder and a second end extending outside of said combustion cylinder;

a hollow air mixing body having a proximal end in communication with said first end of said fuel inlet pipe, a distal end of said air mixing body having a hemispherical nozzle cap with a plurality of slots therethrough;

an orifice connected between said proximal end of said air mixing body and said first end of said fuel inlet pipe,

said proximal end of said air mixing body having a plurality of air inlet holes,

said air mixing body being structured and arranged at said first end of said combustion cylinder so that when fuel is burned, a naturally aspirated unregulated, turbulent forced air effect develops that increases the pressure at the plurality of air inlet holes so as to reduce CO and Nox emissions from the combusted fuel discharged at said second end of said combustion chamber.

2. The fuel burning device as claimed in claim 1, wherein there is a primary ignition of said fuel at said slots of said nozzle that creates a circular pattern of flame adjacent to an inner wall of said combustion cylinder.

3. The fuel burning device as claimed in claim 1, further comprising a positioning bracket connected to an exterior surface of said combustion cylinder and to said second end of said fuel inlet pipe, said bracket being adjustable to move said air mixing body toward said second end of said combustion cylinder.

4. The fuel burning device as claimed in claim 1, further comprising a choke adjuster shaft connected between said orifice and said fuel inlet pipe said shaft being adjustable to slow the speed of combustion gas through the combustion cylinder.

5. The fuel burning device as claimed in claim 4, further comprising a turbulence disk connected to an exterior surface of said air mixing body, said turbulence disk creating a first zone of turbulence above the turbulence disk in a direction of combustion gas exit and a different second zone of turbulence below the turbulence ring so as to create negative pressure at said plurality of nozzle cap slots, so that CO is

practically eliminated and NOx emission is reduced, when the fuel is combusted.

6. The fuel burning device as claimed in claim 5, wherein said second zone of turbulence has a curvilinear retrogradation pattern.

7. The fuel burning device as claimed in claim 5, further comprising a hollow cylindrical air guide connected at a first extremity to said second end of said fuel inlet pipe, a second extremity of said air guide having an air guide aperture, an exterior surface of said mixing device and an interior surface of said air guide defining an area of secondary combustion.

8. The fuel burning device as claimed in claim 7, further comprising plural vortex fins projecting from said air guide at said second extremity and toward said aperture so as to form a respective vortex slot between an adjacent two of said plural vortex fins, a force of naturally aspirated rising air through said vortex slot creating helicoidal vortex air currents in said area of secondary combustion.

9. A fuel burning device, comprising:

a tubular combustion cylinder open at opposing first and second ends;

a fuel inlet pipe having a first end extending through said first end of said combustion cylinder partially into the combustion cylinder and a second end extending outside of said combustion cylinder;

a burner head connected to said first end of said fuel inlet pipe;

an orifice connected between said burner head and said first end of said fuel inlet pipe,

said burner head being structured and arranged at said first end of said combustion cylinder so that when fuel is burned, a naturally aspirated unregulated, turbulent forced air effect develops so that combusted fuel discharged at said second end of said combustion cylinder has reduced CO and NOx emissions.

10. The fuel burning device according to claim 9, wherein said burner head comprises a hollow air mixing body having a proximal end in communication with said first end of said fuel inlet pipe, a distal end of said air mixing body having a hemispherical nozzle cap with a plurality of slots therethrough.

11. The fuel burning device according to claim 9, wherein said burner head comprises a hollow air mixing body having a proximal end in communication with said first end of said fuel inlet pipe, a distal end of said air mixing body having a conical nozzle cap with a plurality of holes

therethrough, said nozzle cap having a lip which protrudes from said air mixing body.

12. A method of reducing carbon monoxide (CO) and oxides of nitrogen NOx emissions, comprising the steps of:

positioning a burner head nearer a first open end of a combustion cylinder surrounding said burner head than a second open end, so that a naturally aspirated, unregulated, turbulent forced air effect develops;

combusting an air/fuel mixture exiting from said burner head between said burner head and an inner wall of said combustion cylinder;

discharging the combusted fuel from said second end of said cylinder;

using the forced air effect to increase a pressure at air inlets of said burner head to reduce CO and NOx emissions due to the increased pressure.

13. The method of claim 12, further comprising the step placing an orifice adjacent said burner head to produce about 25,000 Btu at 11 inches water column supply pressure for propane gas.

14. The method of claim 12, further comprising the step of adjusting a bracket connected to an outside surface of the combustion cylinder to move the burner head closer to the second end of the combustion cylinder, which further increases

the pressure at air inlets of the burner head so as to further reduce CO and NOx emissions.

15. The method as claimed in claim 12, further comprising the step of adjusting a choke adjuster disk connected through a choke adjuster shaft to a fuel inlet area of said burner head to create a venturi effect in the combustion cylinder, so as to slow down a speed of combustion gas through the combustion cylinder to still further reduce CO and NOx emissions.

16. The method as claimed in claim 15, further comprising the step of attaching a turbulence disk to an exterior surface of said burner head to create two different zones of air pressure.

17. The method as claimed in claim 16, wherein a first one of said zones is above the turbulence disk in a direction of combusted fuel discharge and a second one of said zones is below the turbulence ring.

18. The method as claimed in claim 17, wherein the burner head comprises plural slots in the first zone, so that a pattern of turbulence with a curvilinear retrogradation develops in a secondary combustion air, upstream, in said direction of combusted fuel discharge, of an ignition area of said plural

slots between said exterior surface of said burner head and an inner wall of said combustion cylinder.

19. The method as claimed in claim 18, further comprising the step of inserting a hollow cylindrical air guide into said combustion cylinder, between said burner head and said inner wall of the combustion cylinder, so as to define a secondary area of combustion between an inner wall of said air guide and said burner head and creating a tertiary area of combustion between an outer wall of said air guide and said inner wall of said combustion cylinder..

20. The method as claimed in claim 19, further comprising the step of creating vortex air currents by placing air vanes into the air guide, said vortex air currents substantially eliminating CO emission and further reducing NOx emissions.